



G5 Bitemark Moratorium Part 2: Moving Forward

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Learning Overview: After attending this presentation, attendees will better understand the current status of bitemark methodology and a potential outline for empirical studies as a path forward.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by illustrating the fundamental issues of bitemarks that require scientific validation via research. Until and unless proven methods in bitemark identification, analysis, and comparison can be scientifically established, a moratorium on the use of bitemark evidence in criminal cases should be in place.

Guidelines and standards established in the 1970s by the American Board of Forensic Odontology were based on the experience, knowledge, and training of the bitemark examiners. While the language and terminology has evolved over time, a scientific underpinning of the methods used in bitemark pattern identification, analysis, and comparison still do not exist.¹⁻³ When the Federal Rules of Evidence adopted the *Daubert* Standard, bitemark evidence grandfathered in by historically being recognized as generally accepted by past court rulings as precedent. In today's environment, "generally accepted" evidence based on "experience, knowledge, and training" is no longer acceptable without a quantitative empirical scientific underpinning. Past wrongful convictions and indictments in the United States, Canada, the United Kingdom, and other countries have shown that opinions of even the most experienced forensic dentists are fallible.

A bitemark literature search from 1966 to 2006 revealed that only 15% of all published papers were empirical studies. The vast majority were case reports of human bitemarks.⁴ Previous empirical studies conducted to assess error rates in bitemark analysis using porcine skin have problems with scientific external validity.^{5,6} Only a few studies have been conducted using "real-life" bitemarks to assess levels of expert training on interpretation of bitemarks and comparisons to a dentition.⁷⁻¹¹ Though the level of disagreement among forensic dental experts is troublesome, some studies show that expert disagreement is related to the quality of the evidence.¹² Each research study has its flaws, but to be able to move forward, the following basic questions need to be answered: (1) Can a pattern injury be reliably determined to be a bitemark or not?; (2) How does one determine whether a purported bitemark possesses sufficient evidentiary value to warrant further investigation or comparison?; and (3) Can a given dentition be excluded or not excluded as having made the bitemark?

This presentation will highlight a path forward for proposed studies whose goal is to provide a framework that may or may not establish justification for the recognition of bitemark patterns, their analysis and, where appropriate, comparison to suspect biters. Lacking this scientific underpinning, bitemark pattern injury attribution to a suspect should not be introduced as evidence in criminal cases going forward and even bitemark recognition should be undertaken with caution.

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Bitemark, Moratorium, Empirical Studies